CLAIMS

Having thus described the aforementioned invention, I claim:

1. A roll-over airbag for a vehicle self-inflating restraint system, said roll-over airbag comprising:

a first supported fabric panel having a perimeter of a pre-selected length;

a second supported fabric panel perimetrically bonded to said first supported fabric panel;

at least one port opening provided in said first supported fabric panel for connecting said roll-over bag to an inflator to allow communication of an expansion fluid from the inflator to said roll-over airbag; and

at least one securement member disposed proximate said perimeter for providing a reinforcing lap joint, each said at least one securement member having an upper portion bonded to said first supported fabric panel and a lower portion bonded to said second supported fabric panel thereby distributing stress associated with expansion of said roll-over airbag over a larger surface area.

2. The roll-over airbag of claim 1 wherein said roll-over airbag further comprises at least one tether disposed within said airbag for limiting displacement of said first and second supported fabric panels from one another, said tether having a first end bonded to said first supported fabric panel and a second end bonded to said second supported fabric panel.

3. A roll-over airbag for a vehicle self-inflating restraint system, said roll-over airbag comprising:

a first supported fabric panel having a perimeter of a pre-selected length;

a second supported fabric panel perimetrically bonded to said first supported fabric panel;

at least one port opening provided in said first supported fabric panel for connecting said roll-over bag to an inflator to allow communication of an expansion fluid from the inflator to said roll-over airbag;

at least one securement member disposed proximate said perimeter, each said at least one securement member having an upper portion bonded to said first supported fabric panel and a lower portion bonded to said second supported fabric panel thereby distributing stress associated with expansion of said roll-over airbag over a larger surface area; and

at least one tether disposed within said airbag for limiting displacement of said first and second supported fabric panels from one another, said tether having a first end bonded to said first supported fabric panel and a second end bonded to said second supported fabric panel.

4. The roll-over airbag of claim 3 wherein each said tether is defined by at least a two-ply member defining an I-shaped cross section and having a first end bonded to said first supported fabric

panel and a second end bonded to said second supported fabric panel and defining concave edge portions.

5. The roll-over airbag of claim 4 wherein each said tether is defined by a first folded supported fabric member and a cooperating second folded supported fabric member, said first and second folded supported fabric members being secured to one another by a securement member, wherein said first and second folded supported fabric members have a first preselected width and said securement member has a second preselected width said first preselected width being greater than said second preselected width.

6. The roll-over airbag of claim 3 wherein said tether comprises a first panel member, a second panel member secured to said first panel member and at least one region of securement for securing said second panel member to said first panel member.

7. The roll-over airbag of claim 6 wherein said at least one region of securement is defined by an elongated region of securement having a preselected width of securement.

8. The roll-over airbag of claim 7 wherein said elongated region of securement includes end sections having a width greater than said pre-selected width of said elongated region of securement.

9. The roll-over airbag of claim 6 wherein said second panel member is secured to said first panel member by stitching.

10. The roll-over airbag of claim 6 wherein said elongated region of securement is defined by at least first and second rows of stitching, wherein said first and said second rows of stitching are parallel and each of said first and second parallel rows of stitching includes a first end and a second end, wherein a first substantially curved row of stitching extends from said first end of said first row of stitching to said first end of said second row of stitching and a second substantially curved row of stitching extends from said second end of said first row of stitching to said second end of said second row of stitching.

11. The roll-over airbag of claim 6 wherein said at least one region of securement is defined by a plurality of regions of securement in spaced relation.

12. A method of producing a flat joint seam in a roll-over airbag, in which the joint seam of the roll-over airbag is reinforced with a lap joint, said method comprising the steps:

overlaying a first supported fabric panel having a perimeter of a pre-selected length on a second supported fabric panel having a perimeter of said pre-selected length, wherein said first and second supported fabric panel are coated with a bonding agent reactive to RF energy;

bonding said perimeter of said first supported fabric panel to said perimeter of said second supported fabric panel using radio frequency energy by pressing a region of said perimeter between a metal form having a surface area selected to conform to said region to be bonded and a bottom plate, wherein said metal form and said bottom plate are in radio frequency conductive communication with a radio frequency generator;

disposing at least one securement member proximate said perimeter, said at least one securement member having said bonding agent coated on at least one side, wherein said at least one securement member includes an upper portion and a lower portion, such that said upper portion adjoins said first supported fabric panel and said lower portion adjoins said second supported fabric panel, wherein at least one securement member is folded such that said upper portion is in contact with said lower portion;

disposing a barrier between said upper portion and said lower portion, wherein said barrier is not reactive to RF energy; and

bonding said upper portion to said first supported fabric panel and said lower portion to said second supported fabric panel thereby forming a lap joint reinforced seal using radio frequency energy by pressing a region of said lap joint reinforced seal between said metal form and said bottom plate, whereby said barrier prevents said bonding agent from bleeding through said at least one securement member thereby preventing said upper portion from bonding to said lower portion.

13. The method of claim 12 wherein said barrier is a coating on a side of said at least one securement member, wherein said coating is impermeable to said bonding agent.

14. The method of claim 12 wherein said barrier is a template barrier that is positioned between said upper portion and said lower portion.

15. The method of claim 12 wherein said step of disposing said barrier is achieved by constructing said at least one securement member of a material impervious to said bonding agent and non-reactive to radio frequency energy, wherein said bonding agent is coated only on a side of said at least one securement member in contact with said first supported fabric panel and said second supported fabric panel.